

REMARKS

The Office Action dated June 27, 2008 has been carefully considered. Claims 13-24 were pending, of which claims 19, 21 and 24 were withdrawn previously in response to restriction and election of species requirements. In this Office Action, claims 13-18, 20, 22 and 23 have been rejected. New claims 25, 26 and 27 have been added. No new matter has been added by these amendments. Applicants respectfully request reconsideration and re-examination in view of the foregoing amendments and following remarks.

The Examiner maintained the restriction requirement for claim 24 for lack of unity. According to 37 C.F.R. §1.475 (b)(4), a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn to "[a] process and an apparatus or means specifically designed for carrying out the said process". Here, claim 24 claims an apparatus specifically designed for carrying out the process claimed in claim 13. Further, in maintaining the restriction requirement, the Examiner pointed to Goedicke et al., DE 19527515, and stated that it proves "that the common technical feature of the inventions is not a special technical feature and that restriction is proper." However, as it will be discussed in detail below, Goedicke et al. nor any other references cited by the Examiner teach heat treatment of a metallic coated steel product with high energy infra red radiation by adding an additional metallic element to the metallic coating. Thus, Applicants respectfully submit that this feature is special technical feature not found in the cited references, and an apparatus for carrying out such a special technical feature should not be restricted. Therefore, Applicants traverse this ground of restriction requirement. However, to facilitate the prosecution, Applicants added a new method claim 27, which depend from independent method claim 13, incorporating an apparatus for carrying out the claimed

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process of claim 13. No new matter has been added by this claim amendment. Reconsideration of the restriction requirement, consideration and indication of allowability of new claim 27 are respectfully solicited.

The Examiner has objected to the abstract of the disclosure for inclusion of "means" and "said". In response Applicants have amended the abstract to delete these words. Thus, Applicants respectfully request the Examiner to withdraw this ground of objection.

The Examiner has rejected claims 13-15, 17-18, 20 and 22-23 under 35 U.S.C. §103(a) as being unpatentable over Goedicke et al., DE 19527515, in view of Hörzenberger, EP 1201321. Applicants have carefully reviewed the cited references and the Examiner's application thereof; however, Applicants respectfully traverse this ground of rejection for the reasons discussed below.

In rejecting claims 13-15, 17-18, 20 and 22-23, the Examiner admitted that Goedicke et al. "fails to teach the thermal treatment (recited in claim 13) being applied by directing high energy infra red radiation towards the outer surface of said coating." To cure this deficiency, the Examiner cited the Hörzenberger reference.

Hörzenberger teaches a method of producing a pre-painted metal substrate. The infra red radiation in the Hörzenberger reference is used for curing an organic paint coated on the surface of a pre-treated metal substrate. Hörzenberger teaches that the infra red radiation is effective for curing such a paint layer because organic paints have high infra red radiation heat absorption properties. Specifically, Hörzenberger, in paragraph [0032], explains that curing of a metal substrate painted on both sides is faster than a metal substrate painted on one side when subjected to infra red radiation on both sides, and states "This effect is due to the higher heat absorption by the paint layer compared to the metal surface which exhibits a high reflectivity."

As quoted, Hörzenberger teaches that the infra red radiation treatment is efficient for curing an organic paint due to its high infra red radiation heat adsorption properties. Further, Hörzenberger highlights the inefficiency of using infra red radiation on a metallic surface due to a high reflectivity of a metal surface. Thus, one skilled in art confronted with such teachings of Hörzenberger would not be motivated to modify the Goedicke et al. reference as suggested by the Examiner to use the infra red radiation on a metal coated substrate without any organic coating.

The problem of using the infra red radiation for a metal coated surface is also discussed in the present application. However, Applicants do not only present the problem of using the infra red radiation on a metal coated substrate, but also disclosed a solution to the problem. Specifically, in paragraph [0022], Applicants state "[t]he use of high energy infra red for the thermal treatment of metal coated products is not known so far, which is mainly due to the fact that without the additional metal-addition (such as Mg), the aspect of the coating is more reflective, which would not allow the required heating to take place. The deposited Mg lends a non-reflective aspect to the coating, allowing an efficient heat absorption when applying the high energy infra red." In other words, the infra red radiation treatment of the metal coated steel product is made possible by the additional metallic element, which is claimed in independent claim 13.

As admitted by the Examiner, the Goedicke et al. reference does not teach heat treatment of a metal coated surface using the infra red radiation. The Hörzenberger reference teaches curing of an organic paint layer using the infra red radiation and highlights efficiency of the infra red radiation due to the high absorption rate of the organic paint layer. Nowhere do these cited references suggest or teach applying the infra red radiation on a metal coated surface, which is against the conventional understanding of undesirability of using the infra red radiation on metallic substrates due to their high reflectivity. That is, the infra red treatment of a metal coated surface by adding an additional metallic element to the metal coating as claimed in independent claim 13 is a novel patentable aspect of the present invention that neither references teach or suggest.

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As such, Applicants respectfully submit independent claim 13 and its dependent claims 14-18, 20, 22 and 23 are patentable over cited references as they stand.

Additionally, dependent claim 22 requires that the infra red radiation be directed toward both sides of a metal coated sheet for a time interval between 3 to 8 seconds. The Examiner stated that "the application of the radiation for 3 to 8 seconds has not been explicitly mentioned by the references combined, however, this said variation is considered minor where it does not render the claims patentably distinct since it would have been obvious to one of ordinary skill in art at the time of the invention to choose the instantly claimed range through process optimization."

However, the Hörzenberger reference specifically teaches away from the heating duration required in claim 22 by teaching a heating duration which is outside of the range required by claim 22. In paragraph [0025], Hörzenberger states "[t]he near infrared radiation should be strong enough in order to heat up the whole paint layer within a very short time, lower than 3 seconds, preferably lower than 2 seconds." This is because of the high heat absorption property of an organic paint layer, as discussed previously. Therefore, the cited references, on their own or combined, do not teach or suggest all limitations of claim 22. Reconsideration of claim 22 is respectfully solicited.

In addition, new dependent claims 25 and 26 have been added to more clearly described claimed invention. No new matters has been added by these claim amendments.

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

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Extension of Time and Fee Deficiency

Applicants believe that a one month extension of time is required. However, this conditional petition is being made to provide for the possibility that Applicants have inadvertently overlooked the need for a petition and fee for extension of time. If any additional fee is required, or any overpayment is made, in connection with this communication please charge or credit deposit account No. 50-3505.

Respectfully submitted,

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